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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,866	07/21/2004	Mikio Mori	255735US90PCT	3626
22850	7590	03/10/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			WONG, ERIC K	
			ART UNIT	PAPER NUMBER
			2883	

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/500,866	Applicant(s) MORI ET AL.	
	Examiner Eric Wong	Art Unit 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to ^{amendment} communication(s) filed on 20 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 12/20/05 have been fully considered but they are not persuasive. Applicant argues that the prior art of Ueda fails to explicitly disclose a heater or heat absorber on or buried within a plate disposed on a waveguide. Examiner respectfully disagrees and believes Ueda meets the limitations as currently claimed. Referring to figure 4, the Examiner contends that elements 12/13 are plates with heat absorbers buried within. The limitations as currently claimed do not restrict the use of Peltier elements as "pedastals". These "pedastals" are disposed on one side of the waveguide, support the plate and transfer heat to elements 12 and 13 (heat absorbers).

2. Applicant's arguments that Ueda fails to show structural support for the use of a surface roughness having the values as claimed have been considered, but they are not persuasive. Regardless of whether or not surface roughness would be used as a method of preventing heat transfer does not prevent Ueda from having a surface roughness as broadly claimed as **OVER** 0.05um. Examiner also notes that the proper use of materials with large surface roughness in the heat transfer art can still yield extremely high thermal conductivity (see attached Thermal Management Article). As commonly known in the art of attaching heat sinks (See United States Patent Number 5,147,821 dated 1992; column 1, lines 57-60), the generation of holes, dimples, or roughened surfaces to achieve better adhesion between surfaces is well known. Furthermore, the Examiner contends that such drilling of holes, dimples or the creation of a roughened surface would inherently generate a surface roughness value MUCH larger than the 0.05um as claimed

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(also see attached Surface Roughness Guide). More references concerning surface roughness and its interaction with thermal conductivity or adhesion properties can be supplied upon request.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 22-23, 25-26, 28 and 32-34 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent Number 6,163,633 to Ueda.

Ueda discloses in figure 4, a temperature control element comprising:

- A plate having a heater or heat absorber buried thereon (12/13);
- A pedestal provided to support the plate (6);
- A sum of area of contact between the pedestal and the plate including the heater or heat absorber that is over 30% of the area of the plate.

As to claim 28, a waveguide module is disclosed.

5. Claims 15-16, 18-19, 21, and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda as applied to claims above.

Ueda discloses a plate with heat absorbing qualities buried within disposed on pedestals with a contact area greater than 30% and inherent roughness, but fails to explicitly disclose a sum of roughness with the value as claimed.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include components with the roughness values as claimed (**OVER**

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0.05um) in order to provide better frictional support and since it has been held that discovering an optimal value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 27, 205 USPQ 215 (CCPA 1980). In this case, by providing a high value of surface roughness, better adhesion properties between the heat sink and pedestal are achieved.

6. Claims 17, 20, 24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda as applied to claims above.

Ueda and Ueda in view of optimal values above disclose the invention as claimed, but fails to explicitly disclose the use of ceramic materials.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a ceramic material in place of the materials disclosed, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

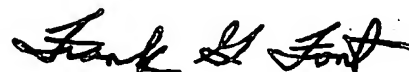
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 571-272-2363. The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EW



Frank G. Font
Supervisory Patent Examiner
Technology Center 2800